

WHAT IS CLAIMED IS:

1. A solid polymer electrolyte membrane with ion exchangeability employed in a solid polymer electrolyte fuel cell, wherein an anion group is partially combined with the solid polymer membrane.

2. A method for producing a solid electrolyte membrane with ion exchangeability employed in a solid polymer electrolyte fuel cell, comprising a step of partially combining an anion group with the solid polymer electrolyte membrane.

3. A method for producing a solid polymer electrolyte membrane comprising the steps of:

covering a predetermined portion on a surface of a polymer substrate with a first mask to shield the predetermined portion;

applying radiation to an entirety of the polymer substrate;

grafting a styrene onto a polymer in a remaining portion in the polymer substrate not covered by the first mask;

removing the first mask from the polymer substrate; and

combining an anion group with the styrene on the polymer in the grafted remaining portion of the polymer substrate.

4. A method for producing a solid polymer electrolyte membrane comprising the steps of:

applying radiation to a surface of a polymer substrate;

covering a predetermined portion in the radiated surface of the polymer substrate with a mask to shield the predetermined portion;

grafting a styrene onto a polymer in a remaining portion of the polymer substrate not covered with the mask; and

combining an anion group with the styrene on the polymer in the grafted remaining portion of the polymer substrate.

5. A method for producing a solid polymer electrolyte membrane comprising the steps of:

applying radiation to a surface of a polymer substrate;

covering a predetermined portion of the radiated surface of the polymer substrate with a mask for shielding the predetermined portion;

grafting a styrene onto a polymer in a remaining portion in the polymer substrate not covered with the mask;

removing the mask from the polymer substrate; and

combining an anion group with the styrene on the polymer of a surface portion of the predetermined portion in the thickness direction thereof.

6. The method for producing the solid polymer electrolyte membrane in accordance with claim 1, wherein the anion group includes a sulfonic acid group.

7. The method for producing the solid polymer electrolyte membrane in accordance with claim 2, wherein the anion group includes a sulfonic acid group.

8. The method for producing the solid polymer electrolyte membrane in accordance with claim 3, wherein the anion group includes a sulfonic acid group.

9. The method for producing the solid polymer electrolyte membrane in accordance with claim 4, wherein the anion group includes a sulfonic acid group.

10. The method for producing the solid polymer electrolyte membrane in accordance with claim 5, wherein the anion group includes a sulfonic acid group.